

promotion of an object to the next generation should be postponed or altogether avoided. Hence, the number of objects that are prematurely promoted is reduced. As a result, system performance is improved, especially when a relatively small amount of memory and/or processing power is used (e.g., embedded or handheld devices, virtual machine used for smaller devices, etc.)

**[0016]** The invention can be implemented in numerous ways, including as a method, a computer system and a computer readable medium. Several embodiments of the invention are discussed below.

**[0017]** These and other aspects and advantages of the present invention will become more apparent when the detailed description below is read in conjunction with the accompanying drawings.

### **BRIEF DESCRIPTION OF THE DRAWINGS**

**[0018]** The present invention will be readily understood by the following detailed description in conjunction with the accompanying drawings, wherein like reference numerals designate like structural elements, and in which:

Fig. 1 illustrates a computing system in accordance with one embodiment of the invention.

Fig. <sup>2A-E</sup>~~2A-D~~ depict preemption marking in accordance with various embodiments of the invention.

Fig. 3A depicts a smart allocation system in accordance with one embodiment of the invention.

Fig. 3B illustrates a preemptive memory allocator that is directly accessed (e.g., called) by a function in a code portion in accordance with one embodiment of the invention.

Fig. 4 depicts a memory allocation method for allocation of objects in memory that is partitioned into a plurality of generations in accordance with one embodiment of the invention.

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